

## **HISTORY OF WATER DISTRIBUTION IN THE ZAYANDEHROOD RIVER AND SHEIKH BAHAIIE'S SCROLL**

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The Zayandehrood River of Isfahan originating from Zardkooh Bakhtiari Mountain to Gavkhooni Lagoon with an approximate distance of 400km is a vital vessel to Chahar Mahal-o-Bakhtiari region and Isfahan province. Naturally, severe seasonal tolerance of this river has been a great dispute in the social tensions of the region before building Zayandehrood Dam and water transfer tunnels. During its long history, the river has granted water rights to inhabitants near it; systematizing, balancing, monitoring, and distribution of water have been inevitable and inseparable parts of the regional policies.

Several factors have naturally existed in water distribution disorders of this region the most important of which are as follows: water shortage especially for the agriculture sector with regard to Isfahan's dry climate, coincidence of the river's low-water season with users peak time of requirement, the access possibility for upstream inhabitants and lack of such possibility for downstream inhabitants with regard to lack of the possibility to continuously monitor and control the utilization networks, the interference of big landlords, and the influence of tyrannical rulers of the time.

What is understood by studying the history of water distribution in this area is that using the river water would have led to numerous disputes and quarrels and that specific order would have been enacted by headmen of the riverside villages during historical periods; this order was subject to muddle with seasonal water fluctuations as well as the rulers' instability. The scroll attributed to Sheikh Bahaiee is one of the best historical written documents on water distribution management drawn up and edited 400 years ago; it has noticeable cultural aspects and hereditary capitals in particular. This is the only written document to which water distribution generals have been referred in this paper. Its first page is exactly presented here due to the writing eloquence and the vocabulary used.

"In The Name of He Who is The Most High.

To: His Majesty Shah Tahmasb, the Great, and the Precious. According to your Majesty's royal order regarding some conflicts risen in the villages and water shares of the Zayandehrood River, please kindly assign some trustees of your powerful government along with some trustworthy aged men verified and approved by Their Highnesses state accountants and headmen and patriarchs of the common districts in order for every village and farm's share and allotment to be specified in each district in accordance with their capability and capacity without any deception and false intention

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and to be necessarily registered in the logs to refer to later on; and as 'Jay' is located in the middle of the irrigated districts of the blessed river, it has been appointed from old times that a trustworthy headman of any district takes on the watering works of that district. His Royal Highness is requested to order the same again for the present time.

Please also kindly order your respectful agents and registrars, headmen and patriarchs of the said districts, water distributors, supervisors, waterway chiefs, and workers of the blessed river to consider every district's water right as per the instructions in this scroll without any violence and away from the reprimands of His Majesty's powerful government forces and to keep their word. Written on July-August, 1500.

According to His Majesty's order and signatures of state accountants and confirmation of headmen and patriarchs, the distribution resolution of the blessed Zayandehood River of Isfahan among farmers of the said districts for the duration of one Hijri Shamsi year is as follows:

Every village of Lenjan and Alenjan gives ten thousand kilos of rough rice to the Rei'e Office, plants 33 acres of rough rice and if extra land is planted, farmers of 'Marbin' and 'Jay' districts are allowed to plough the same. In every watering year, inhabitants of Roudasht have two times excluded from the subject and when there is drought from the 78<sup>th</sup> night of Nowrooz which is the half of Gemini up to fifteen days, in this way that on the 78<sup>th</sup> day a messenger is appointed at the main origin of waterways and before dawn, all waterways from 'Polkalleh' to the end parts of 'Bara'an' waterways is dried until the 10<sup>th</sup> day and after 5 days of shares distribution (Sarkardeh) if there is a big damage to local seedlings, a slight irrigation shall be done on the 6<sup>th</sup> and 7<sup>th</sup> day and the second "Vanesh" (see below list) which is soiled water shall be dried and then share-distributed according to the first Vanesh instructions. As 'Fady' waterway is flowing through the town, irrigation adequate for three or four millstones shall be done and regarding 'Nyasarm' waterway of 'Jay', as some respectful quarters are drunk from that and it is a main canal, the resolution is that one day before the Vanesh of Roudashtain, the water distributor marks its Shourabeh (see below list) and hands it over to the headman, the waterway chief, and the messenger to keep an eye on it till the end of Vanesh and not to violate. They shall keep Bara'an inhabitants for five days and then let them in."

The vocabulary used in the writing of Sheikh Bahaiee's Scroll is extracted from the local culture and common irrigation words of that era which are exactly used in the scroll. Some of them are listed below for their historical eloquence and hereditary aspects:

Waterway chief (Madisalar): A man who has the responsibility of supervising water distribution in initial main distributions.

Messenger (Ghased): A man who is appointed at waterway origins by the irrigation office.

Water distributor (Mirab): A man who is chief of the river and divides the whole shares among districts.

Chief watch (Sarkeshik): equal to water distributor.

Alj: a stream branched from a waterway.

Waterway (Madi): local term for a large stream.

Lat: the point of water distribution in waterways.

Jolbandy: Blocking the course of water by means of motes and stalks.

Vanesh: dedicating some shares to one stream at times when there is little water or when the water is not transferable.

Sarkardeh: Distributing the river water to waterways according to their shares.

Vareh: Blocking the course of water by means of stones, mud, etc.

Shourabeh (salty water): when a waterway's entrance is blocked, the remaining water inside is called Shourabeh.

Gelandaz: land on the sides of a waterway for its silt clearing.

Studying the generalities of Sheikh Bahaiee's Scroll shows that an amazing knowledge is applied in it. The important aspect is that it is drawn up in accordance with the regional environmental characteristics, farming diversity along the said course, and users' previous known principles. The text of the scroll is executive so that the executor can infer his orders from that.

In this scroll which is written with respect to Shamsi days, one Shamsi year has been considered 360 days and water distribution is not implemented in the first 75 days because of water adequacy. The last 120 days which coincide with the cold season and stoppage of farming activities are also overlooked; the remaining 165 days are considered in water distribution and the scroll's shares that are divided into 33. Districts of this course having water right are 4 general districts called Lenjan and Alenjan, Marbin and Jay, Kararaj, Bara'an and Roudashtain. Except for Kararaj that has 3 shares of the river water, the other districts have 10 shares making 33 shares on the whole. In other distributions, main shares are divided into subsidiary shares with regard to the districts conditions, forming a sum of 275 shares which are in return divided into other subsidiary shares making a grand total of 3098 shares.

After the distribution, considering the districts' need to water naturally influenced by crops type, days of allowed use with specific alternation are executed. As mentioned at the beginning of the scroll, headmen of Jay district who are located in the middle of the river's course, have the responsibility to supervise and execute the contents of the scroll.

Waterway chiefs and water distributors of Jay district take action to close or open water right canals by utilizing workers (water distributor's servant) of the other district. Another part of the scroll denoting its instructions in this regard is presented below for its clear wording:

"The resolution is that one day before 'vanesh' , the water distributor shall call the messengers of Marbin and Jay together at the bridge of Falavarjan and shall give them the chief-watch share of Alenjan and Lenjan and shall appoint the water distributor's servant of each watch, stood at the waterway, to gather grass and shall appoint the messenger of Nyasarm waterway for Marbin watch and he himself shall leave for Ashyan quarter. Before dawn, the servant of each watch shall close all of his waterways so that two hours passed from sunrise, all waterways would be closed. After water spills

over the sides of Falavarjan bridge, the servant of Marbin watch shall close Marbin waterways and the water distributor shall seal the closed waterways from Polkaleh and shall go down to the gate of Nyasarm waterway of Jay. After water reaches Nyasarm waterway gate, as long as the time needed for grinding one thousand kilos of flavor in Mo'menagha's millstone, the water distributor shall go up and seal every waterway according to the known shares he has and then he shall go to the watches until morning of next day when it is time for water closure. Every opposing waterway shall receive self-closure and shall carry its own remaining water so that there is adequate water in Lenjan and Alenjan to reach everywhere. If it is little, the habitants do 'vanesh' for five days in the way that after Jay's Marbin 'vanesh' they flow it toward Ashyan to reach every waterway. After that, it flows to Alenjan for 4 days and then 2 other days for Lenjan and then Jay and Marbin's 'vanesh' according to the said instruction. If it is not so little, they distribute it to the waterways according to the shares so that it reaches all the chief-watch waterways. The water distributor must consider Alenjan's rough rice when giving water rights of Marbin and Jay not to plant further to the agreement. As the waterways of 'Kooshk' and Ghartaman of Marbin are covered by Alenjan's watch, it is drunk by Alenjan's water. In return, Shahababad and Darjazin's waterway covered by Marbin's watch, is drunk by Marbin's share.

In the first day of 'Jolbandi' when closures are to be built, all of waterways of Lenjan and Alenjan and Marbin are dried for 3 days so that water may reach the waterways of Jay. Then all the waterways are dug so that self-distributed water comes back. A messenger is hired from Marbin and Jay for 20 days who shall sit on all waterways to prevent from making further branches until the time of 'vanesh' of Roudashtain's soiled water. If at any time, water is too little to irrigate crop seeds of Marbin and Jay, on the 15<sup>th</sup> day of Scorpion as much as 30 or 40 millstones of extra water shall go to Kararaj and Bara'an for planting and after 5 days water shall go under 'vanesh' . As the remaining water of Kararaj is adequate for the summer crop, it has no specific 'vanesh' except for 'vanesh' of Marbin and Jay that if there is sufficient water, the water distributor helps them by giving some water at the time of Roudashtain 'vanesh'. The distribution resolution for the messenger of every district and quarter is mentioned below; all districts of a village shall pay 1500 Dinars and those out of the resolution have to pay 350 Dinars for every acre to the water distributor."

Although Sheikh Bahaiee's Scroll ended the anarchy of the Zayandehrood River's water utilization to a remarkable extent, during next times the anarchy went on especially when Isfahan was subject to brutal invasions of some rulers who interfered in water distribution and possession based on their personal tastes. However, after the Constitutional Revolution owners of villages asked for water distribution according to the scroll. They submitted too many objections and complaints to the governments of the time. Finally in 1927, holders of water right who were about 500 people held a meeting at Mirza Taghi Bonakdar's garden and approved the implementation of the scroll. From that date on, affairs of the river were carried out under the supervision of Mr. Nourodin Khan Ostovan who was a high rank officer in the Ministry of Finance. After him, the Waters Office represented by Mahmoud Khan Faroughi, the late and Shokrolah Khan Shirani directed the works respectively.

When the Civil Status Registry was established, people required their shared to be registered and with the agreement of Ministry of Justice and Ministry of the Interior, it

was supposed that in notices and ownership documents the sentence "water right according to rules of the district" be mentioned.

In 1941, the Waters Office was transferred to the Agriculture Department by the approval of the Governor General. All the documents were handed over to the new office. From that date on, 33 representatives were selected based on the 33 parts of the river's water in the scroll. They took on ordering and distributing works. Among them we can name Mr. Karim Keshavarzi, General Manager of Isfahan Agriculture Dept., who worked as the river chief while keeping other duties. He has always been accepted by people.

After building Zayandehrood Dam and its start-up in 1970 and increasing quantitative and time capabilities of water, the system of water utilization based on the scroll was implemented quite free of any problem. It was partly influenced by farmers' expectations change and increase to the utilization system. Those who did not have water right enjoyed it in months when they had no water share. In area where cultivation improved, farmers possessed the right by referring to technical and scientific documents. This process is still ongoing with establishing modern irrigation networks on the downstream of Zayandehrood Dam.

**RESOURCES:**

1. The Zayandehrood River from the Origin to the Lagoon, Dr. Seyed Hassan Hosseini Abari,
2. The Zayandehrood river of Isfahan, Mr. Mohammad Mahmoudian.